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(54) Stabilized magnetic memory cell

(57) A stabilized magnetic memory cell including a data storage layer 50 having an interior region and a pair of end regions 57-58 near a pair of opposing edges of the data storage layer 50 and a stabilizing material 55-56 that pins a magnetization in the end regions 57-58 to a predetermined direction. A method for stabilizing a magnetic memory cell includes the steps of applying a magnetic field that rotates a magnetization in a pair of

opposing side regions of a data storage layer 50 of the magnetic memory cell toward a predetermined direction and that reduces free poles in a pair of opposing end regions 57-58 of the magnetic memory cell, thereby reducing the likelihood of unpredictable switching behavior in the end regions 57-58.

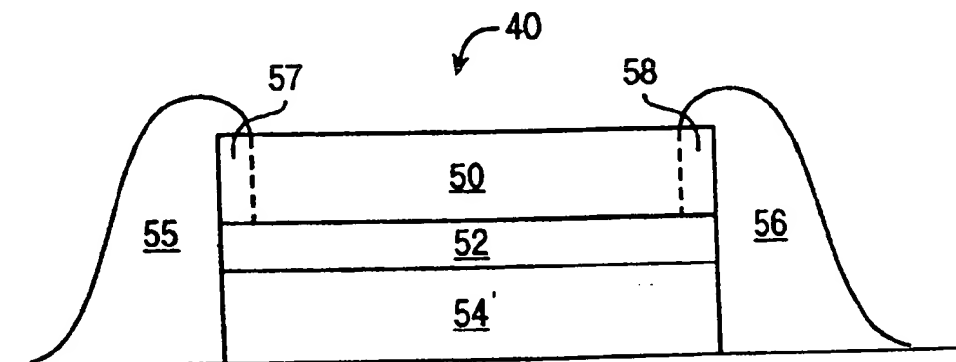


FIG. 1A



European Patent  
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# EUROPEAN SEARCH REPORT

Application Number  
EP 99 30 5878

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	US 5 748 524 A (CHEN EUGENE ET AL) 5 May 1998 (1998-05-05)	1-7	G11C11/14
X	* the whole document *	8-20	G11C11/16
Y	EP 0 676 747 A (READ RITE CORP) 11 October 1995 (1995-10-11) * page 2, column 2, line 50 - page 3, column 3, line 36 *	1-7	
E	US 5 946 228 A (ABRAHAM DAVID WILLIAM ET AL) 31 August 1999 (1999-08-31) * column 7, line 42 - column 9, line 47 *	1-3,7-20	
E	US 6 081 445 A (SHI JING ET AL) 27 June 2000 (2000-06-27) * the whole document *	11-19	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			G11C
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>6 November 2000</b>	Examiner <b>Degraeve, L</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 5878

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The members are as contained in the European Patent Office EDP file on  
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06-11-2000

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5748524	A	05-05-1998	NONE		
EP 0676747	A	11-10-1995	JP	8050710 A	20-02-1996
US 5946228	A	31-08-1999	JP	11273336 A	08-10-1999
US 6081445	A	27-06-2000	WO	0007191 A	10-02-2000

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